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PLASTICS AND CARDIOVASCULAR EVENTS

The production of plastics is expected to increase until the year 2050. Once released into the environment, plastics are susceptible to degradation, leading to the formation of microplastics and nanoplastics (MNPs). Studies have shown that MNPs can enter the human body through ingestion, inhalation, and skin exposure. This study explored whether the burden of MNPs is associated with cardiovascular disease.

This prospective, multi-center, observational study recruited consecutive patients, 18 to 75 years of age, from August 1, 2019, to July 31, 2020, with asymptomatic carotid artery stenosis for whom surgical intervention was indicated. After undergoing carotid endarterectomy, the subjects were followed to monitor for the incidence of a primary event which included nonfatal myocardial infarction, nonfatal stroke, and death from any cause until July 1, 2023. Specimens of the atheromatous plaque that were surgically excised were analyzed for MNPs.

Data were analyzed for 257 patients who completed follow-up at a mean of 33 months. Of these, 150 patients (58.4%) had a detectable amount of polyethylene and 31 of those (12.1%) also had a measurable amount of polyvinyl chloride in the plaque tissue. A primary event occurred in 7.5% of those without MNPs and 20% of those with MNPs ($p < 0.001$).

Conclusion: This study of patients undergoing carotid endarterectomy for asymptomatic carotid artery disease found that those who had evidence of microplastics and nanoplastics in their plaques had an increased risk of myocardial infarction, stroke, or death from any cause.

Marfella, R., et al. Microplastics and Nanoplastics in Atheromas and Cardiovascular Events. *N Engl J Med.* 2024, March 7; 390(10): 900-910.

COVID ASSOCIATED COGNITIVE IMPAIRMENT

Neurological sequelae of COVID-19, colloquially known as "brain fog", include headache, fatigue, malaise, and altered levels of consciousness. This study assessed whether a disruption of the blood brain barrier (BBB) during the acute phase of COVID-19 might be a seminal event in patients with post-COVID brain fog.

The subjects included seventy-six patients hospitalized with COVID-19 and twenty-five controls, with mean ages of 44 and 44.7 years, respectively. The patients were separated into those recovered from COVID-19 (C-Rec), those with post-COVID symptoms but without brain fog (BF-), and those with brain fog (BF+). Serum was drawn to assess markers of inflammation, coagulation, and BBB dysfunction. Dynamic, contrast-enhanced magnetic resonance imaging (DCE-MRI) was used to explore structural changes in the BBB.

Compared to the C-Rec group, DCE-MRI imaging revealed BBB disruption in the BF- and the BF+ group, with the most severe disruption in the BF+ group ($p = 0.0004$). In addition, compared to the C-Rec group, the BF+ group had reduced total brain volume ($p = 0.008$) and reduced cerebral volume (right $p < 0.0001$, left $p = 0.00014$). Surface-based morphometry mapping demonstrated reduced thickness of the frontal pole in all post-COVID patients. Of the 50 markers of neuroinflammation that were measured, only TGF β was found to be associated with BBB disruption.

Conclusion: This study found that long COVID-derived brain fog is associated with blood brain barrier dysfunction and sustained systemic inflammation.

Greene, C., et al. Blood Brain Barrier Disruption and Sustained Systemic Inflammation in Individuals with Long COVID-Associated Cognitive Impairment. *Nat Neurosci.* 2024 Mar;27(3):421-432.

BILATERAL ULNAR NERVE SUBLUXATION IN BASEBALL PITCHERS

Multiple studies have shown that overhead throwing athletes have high rates of asymptomatic shoulder and elbow radiographic abnormalities. Among these are reports of ulnar subluxation. This study assessed the prevalence of ulnar nerve subluxation among professional baseball pitchers.

This cross-sectional study included data collected during spring training physical examinations for professional baseball pitchers. All athletes were minor league system pitchers, affiliated with a major league baseball team. The subjects underwent physical examinations, including the Tinel's test and the elbow flexion compression test. Ultrasound assessment was completed with elbow flexion at 90°, to document the location of the nerve. These were categorized as no subluxation, subluxation (S), or dislocation (D), based upon the position of the nerve relative to the tip of the medial epicondyle.

Data were gathered from 91 athletes with a median age of 22 years. None of those subjects reported symptoms of ulnar neuritis or neuropathic symptoms during activities of daily living. Bilateral ulnar nerve subluxation was detected in 24 of the 91 subjects, resulting in a prevalence of 26.4%. Thirty-two of the subjects had subluxation in the dominant elbow and 27 had subluxation in the non-dominant elbow.

Conclusion: This study of asymptomatic professional baseball pitchers found that 40% had subluxation of an ulnar nerve at the elbow, with 26.4% demonstrating bilateral subluxation.

Looney, A., et al. Prevalence of Bilateral Ulnar Nerve Subluxation among Professional Baseball Pitchers. *J Shoulder Elbow Surg.* Mar; 33(3): 550-555.

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LONELINESS AFFECTS PHYSICAL AND MENTAL HEALTH RELATED QUALITY OF LIFE

The United States Surgeon General has declared that loneliness has a mortality risk comparable to smoking more than 15 cigarettes per day. This study was designed to determine the relationship between loneliness and quality of life (QOL) in older adult primary care patients.

The Caregiver Outcomes of Alzheimer's Disease Screening (COADS) study is an ongoing, randomized, controlled trial, designed to evaluate the risks for Alzheimer's disease (AD) and related dementias, among primary care patients ≥ 65 years of age. The patients were screened using the validated 5-item, Loneliness Fixed Form, Ages 18+, from The NIH Toolbox Emotion Battery, with loneliness scores ranging from five to 25. QOL was assessed using the Short Form Health, Survey-Version 2. Anxiety and depression were assessed using the General Anxiety Disorder-7 and the Patient Health Questionnaire-9 (PHQ-9).

Of the 603 patients screened, the average loneliness score was 7.2, with 47.1% reporting never feeling lonely. Scores on the loneliness scale were significantly related to mental health QOL ($p < 0.001$), anxiety severity ($p < 0.001$), depression severity ($p < 0.001$), and physical health QOL ($p < 0.001$). Patient loneliness was associated with lower physical health QOL when adjusting for patients' sociodemographic characteristics ($p = 0.001$), but not when adjusting for depression and anxiety severity ($p = 0.166$).

Conclusion: This study provides empirical evidence that loneliness is associated with both physical and mental determinants of quality of life.

Williams-Farrelly, M., et al. Loneliness in Older, Primary Care Patients and Its Relationship to Physical and Mental Health-Related Quality of Life. *J Am Geriatr Society*. 2024; 72(3): 811-821.

INTENSIVE BLOOD PRESSURE TREATMENT AND SUBCLINICAL BRAIN INFARCTIONS

The Systolic Pressure Intervention Trial (SPRINT) found that, compared to a systolic blood pressure (SBP) target of < 140 mmHg, blood pressure treatment to < 120 mmHg reduced the risk of cardiovascular events and all-cause mortality. This study investigated whether the presence of

a subclinical brain infarct (SBI) modified this relationship.

The subjects were ≥ 50 years of age, with increased cardiac risk factors and a SBP of between 130 mmHg and 180 mmHg at screening. The participants were randomized in a 1:1 ratio to either an SBP goal of < 120 mmHg (intensive treatment) or an SBP goal of < 140 mmHg (standard treatment). All underwent baseline clinical evaluation including an MRI.

At baseline, of the 667 participants, 75 (11%) had an MRI indicating an SBI. At a mean 3.9-year follow-up, a new SBI was detected in 12 of 457 (2.6%) and a new stroke in eight. No significant difference was found between the blood pressure groups in the risk of new SBI or stroke. However, for those with a SBI at baseline, intensive BP control reduced the risk of a recurrent SBI or stroke ($p = 0.033$), or a subsequent diagnosis of mild cognitive impairment, or probable dementia ($p = 0.01$).

Conclusion: This prospective study found that, among those with a subclinical brain infarction, intensive blood pressure treatment with a systolic blood pressure goal of < 120 mmHg reduced the risk of recurrent brain infarctions, mild cognitive impairment, and probable dementia.

Kern, K., et al. Intensive Blood Pressure Treatment and Subclinical Brain Infarcts: A Secondary Analysis of SPRINT (Systolic Pressure Intervention Trial). *Ann Neurol*. 2024, doi: 10.1002/ana.26892.

SMALLEST WORTHWHILE DIFFERENCE IN ANTIDEPRESSANTS

Depression is a leading cause of disability worldwide. However, the effect size reported for many antidepressant medicines may fall short of the patients' expectation for a cost-benefit ratio. The authors sought to determine the smallest worthwhile difference (SWD) of an antidepressant needed for a patient to accept the costs, risks, and inconveniences.

This cross-sectional survey used three research participant crowdsourcing services (RPCSSs), Prolific, MQ Mental Health (MQ), and Amazon Mechanical Turk (MTurk) to connect with subjects between October of 2022 and January of 2023. The subjects were presented descriptions of patients with major depressive symptoms and a summary of the benefits and side

effects of antidepressant treatment. These were compared with the expected effect of no treatment.

Medication efficacy was described for serotonin reuptake inhibitors (SSRIs) and serotonin-norepinephrine reuptake inhibitors (SNRIs). The natural course of untreated depression was described as a 50% or greater reduction in depression severity in 30% of patients after two months. The primary outcome variable was the SWD of a medication's antidepressant effect which would convince the subjects to take the medication.

Data were collected from 935 participants with a mean age of 44.1 (SD=13.9). Of these, 124 reported moderate-to-severe depressive symptoms, but were not receiving treatment, 390 were receiving treatment, and 495 reported absent-to-mild symptoms, with or without treatment. The median SWD among participants with moderate-to-severe depressive symptoms, but not in treatment, was an additional 20 percentage points over the assumed natural response rate of 30% for no treatment. Given the current benefit of antidepressants over the natural course, two thirds said that they would require better treatment benefits before considering the medication.

Conclusion: This study found that, given the effect of the best antidepressants, compared to the natural course of the disease, two thirds of subjects would not consider taking the medicine, suggesting a need for more effective/less burdensome medications.

Sahker, E., et al. Estimating the Smallest Worthwhile Difference of Antidepressants: A Cross-Sectional Survey. *BMJ Mental Health*. 2024, Jan 8; 27(1): e300919.

DELIRIUM UNDERDIAGNOSIS IN ELDERLY HOSPITALIZED PATIENTS

Studies have shown that patients with in-hospital delirium suffer poor health outcomes, including prolonged hospital stays. However, some studies have suggested that episodes of delirium may not be reflected in their hospital discharge diagnoses. This study was designed to better understand the incidence of in-hospital delirium, using a chart-based review of electronic medical records.

The participants were part of a large epidemiologic, population-based study, the Hordaland Health

Study (HUSK). All were born from 1925 to 1927, with baseline data collected from 1997 to 1999. Electronic medical records from hospitalizations were reviewed to assess whether the patient had experienced delirium. If this was recorded among the diagnoses in the discharge records it was recorded as discharge delirium (D-DD). The term D-CBR was used for those cases where the diagnosis of delirium was made by a review of the electronic medical records but was not included among the discharge diagnoses.

Data were analyzed for 2,115 adults, with a median follow-up of 12.4 years. Of these, 30.2% experienced at least one delirium episode during hospitalization, although only 13.2% had delirium as a discharge diagnosis. The incidence rate (IR) of D-DD during hospitalization was 3.4 per 1,000 person years, while the IR of D-CBR was 29.8 per 1,000 person years.

Conclusion: This study of elderly community dwelling adults found that delirium affected approximately one out of three during hospitalization, although delirium was rarely among the discharge diagnoses.

Titlestad, I., et al. Delirium Is Frequently Underdiagnosed among Older Hospitalized Patients Despite Available Information in Hospital Medical Records. *Age Aging*. 2024, February; 53(2): afae006.

CALCIUM PHOSPHATE INJECTION OF BONE MARROW LESIONS OF THE KNEE

Among patients with osteoarthritis related bone marrow lesions (OA-BMLs) previous studies have shown that intra-osseous calcium phosphate injections (CAP) during knee arthroplasty may improve symptoms and function. This study was designed to understand the effect of CAP injections on the conversion to total knee arthroplasty (TKA).

This retrospective analysis was performed on patients undergoing surgery between January of 2015 and June of 2020. MRI was used to determine the size, and location of OA-BML on the tibias of patients in the CAP cohort. All subjects received an OA grade determination by the Kellen-Lawrence scoring. Patients were selected for knee arthroscopy based on moderate to severe pain lasting more than two months and failure of conservative treatments. The CAP group was followed for at least two years. The knees were evaluated using the KOOS. The

groups were compared by time to conversion to a TKA.

Of the CAP group (n=133), 88.7% did not transition to TKA within two years. The CAP group demonstrated a mean 20.7-point improvement in the KOOS, compared to 10.1 points in the control group (p<0.05).

Conclusion: This retrospective study found that, for patients with degenerative joint disease, those injected at bone marrow lesions with CAP experienced a longer time period before conversion to TKA than did those without.

Statton, A., et al. Total Knee Conversion Rates and Functional Outcome after Calcium Phosphate Injection for Bone Marrow Lesions of the Knee. *J Knee Surg*. 2024; 37(5): 341-349.

FERROPTOSIS IN HUMAN OSTEOARTHRITIS

Osteoarthritis (OA) affects 250 million people worldwide. OA is mainly characterized by disintegration of matrix and reduction of chondrocytes. This study was designed to better understand the role that ferroptosis of chondrocytes plays in the progress of human OA, using Fer-1, a blocker of ferroptosis.

The subjects were five patients, 60 to 65 years of age, with OA of the knee, scheduled for a total knee arthroplasty (TKA). At surgery, the chondrocytes were preserved and stimulated with IL-1 β or IL-1 β + Fer-1, with these compared to controls with no stimulation. The groups were compared by cell viability, level of proteins, and series of markers to investigate the effect of Fer-1 on chondrocytes treated with IL-1 β .

Chondrocytes in the control group were triangular and closely arranged, becoming significantly longer and forming branches in IL-1 β stimulated group. In the IL-1 β + Fer-1 group the deformation amplitude of chondrocytes decreased and the branches formed became fewer. Compared to controls, the cell proliferation was less in the IL-1 β group, with this reduction mitigated in the IL-1 β + Fer-1 group (p=0.0006, p<0.0001, respectively). The concentration of Fe³⁺ of chondrocytes increased in the IL-1 β treated group but decreased in IL-1 β + Fer-1 treated group (p<0.0001). Indicators of OA-related oxidation worsened by IL-1 β were mitigated in the IL-1 β + Fer-1 group, including GSH, MDA, and ROS, as well as protein markers of ferroptosis (GPX4, SLC7A11, P53, and ACSL4).

Conclusion: This study found that ferroptosis plays an important role in human osteoarthritis (OA) chondrocytes, which can be reversed by Fer-1, illustrating that an inhibitor of ferroptosis may be a potential treatment for OA.

Xu, W., et al. Ferroptosis Plays a Role in Human Chondrocytes of Osteoarthritis Induced by LI-1- β In Vitro. **Cartilage**. 2023 Dec; 14(4): 455-466.

DIOSMIN FOR LOWER EXTREMITY PAIN AND SWELLING AFTER KNEE ARTHROPLASTY

Total knee arthroplasty (TKA) is one of the most effective surgical procedures to relieve pain in patients with end stage degenerative disease. Efforts to enhance recovery after this surgery have identified postoperative lower extremity swelling as one of the most frequent causes of patient dissatisfaction. As previous studies have shown that diosmin, a semisynthetic flavonoid derived from hesperidin, can reduce swelling in patients with venous insufficiency, this study assessed the efficacy of this medication after a TKA.

This randomized, controlled, multicenter trial included patients seen from July of 2021 to August of 2022 with osteoarthritis (OA) of the knee, scheduled for primary TKA. Beginning the day after surgery, subjects in the diosmin group were administered 0.9 of oral diosmin twice daily, with the control group receiving none. The primary outcome was the change in lower extremity edema from baseline.

Data were gathered from 330 individuals. Compared to the control group, the diosmin group had less swelling at the patella ($p < 0.001$), calf ($p = 0.0001$), and thigh ($p = 0.002$), as well as significantly lower pain scores during motion ($p = 0.0043$). The medication did not significantly affect postoperative HSS scores, range of motion, or levels of inflammatory biomarkers.

Conclusion: This study of patients undergoing total knee arthroplasty found that the use of diosmin, a synthetic flavonoid, was effective in reducing swelling and pain after surgery.

Wang, Q., et al. Efficacy of Diosmin in Reducing Lower Extremity Swelling and Pain after Total Knee Arthroplasty. **J Bone Joint Surg**. 2024, Mar 20; 106(6): 492-500.

SMARTPHONE ADDICTION AND MYOFASCIAL TRIGGER POINTS

Studies have shown that overuse of smartphones can result in addiction, with this addiction becoming a major global problem, affecting people of all ages. This addiction has been associated with decreased academic performance, musculoskeletal pain, inadequate sleep, and stress. This study viewed the effect of smartphone addiction on myofascial trigger points, focusing on the shoulders and neck as areas of particular stress during iPhone use.

The subjects were 136 university students, ages 18 to 25, with no recent neck trauma. The participants were asked how many hours per day they used their smartphone. They were then asked to identify which posture that they assumed during most of their smartphone use. All were given the Smartphone Addictive Scale-Short Form (SAS-SF) to clarify smartphone addiction, dividing the subjects into addicted ($n = 61$) and not addicted ($n = 75$). The New York Posture Rating Chart (NYPRC) was used to evaluate the posture. Myofascial trigger points were diagnosed using Simon and Travel's criteria in the sternocleidomastoid, upper trapezius, levator scapula, rhomboid, infraspinatus, and cervical extensor muscles.

The number of trigger points was significantly greater in the addicted group than in the non-addicted group ($n = 0.002$). The maximum forward bending posture was most favored by the addicted group.

Conclusion: This study of university students found that smartphone addiction was associated with a greater number of myofascial trigger points and a greater amount of forward bending posture.

Yasarer, O., et al. Association between Smartphone Addiction and Myofascial Trigger Points. **BMC Musculoskel Dis**. 2024, April; 25, 25. doi.org/10.1186/s12891-024-07383-4.

HEALTHY LIFESTYLE IN OLDER ADULTS WITH NEUROPATHOLOGY OF DEMENTIA

As individuals age, a progressive accumulation of dementia related brain pathologies occurs years before the onset of dementia. The Rush Memory and Aging Project (MAP) was initiated in 1997 with an annual assessment of risk factors and a detailed clinical evaluation including

blood sampling. This study included a post-mortem assessment of participants in the MAP.

This study was conducted among participants of the MAP, an ongoing, longitudinal, clinical pathologic study of aging and dementia, comprising older adults living in retirement communities, senior housing, and individual residences in the Chicago area. The MAP was initiated in 1997. Dietary intake was assessed with a 144-item food frequency questionnaire, scored for quality using the Mediterranean-DASH Diet Intervention for Neurodegenerative Delay (MIND) diet score. Late-life cognitive activities were assessed with a structured questionnaire. Physical activity was assessed by a validated questionnaire from the 1985 U.S. Health Interview Survey. The combined lifestyle factors were categorized as low risk or "healthy" if a participant was in the healthiest 40% of the participants studied. Cognitive testing and post-mortem pathology were used in the analysis.

A multivariable-adjusted model revealed that a one-point increase in the healthy lifestyle score was associated with better cognitive performance ($p < 0.01$). For each one-point increase in healthy lifestyle score, there were 0.120 units less of β -amyloid load in the brain ($p = 0.003$).

Conclusion: This study of 586 community dwelling older adults found that a healthier lifestyle was associated with better cognitive function, independently of common neuropathology of dementia.

Dhana, K., et al. Healthy Lifestyle and Cognition in Older Adults with Common Neuropathologies of Dementia. **JAMA Neurol**. 2024, Feb 5; 81(3): 233-239.

MONTREAL COGNITIVE ASSESSMENT TEST IN DIVERSE GERIATRIC POPULATION

The Montreal Cognitive Assessment (MoCA) is a common neurocognitive screening tool. However, a common shortcoming of the MoCA is that scores can be significantly influenced by education and cultural factors. This study evaluated the appropriateness of the MoCA for a diverse, community based, sample of older adults in the Bronx, New York.

This prospective study included community dwelling adults, 65 years of age or older, presenting to a primary care clinic with cognitive concerns. The subjects were evaluated with the MoCA,

administered in either English or Spanish, along with neuropsychological tests. Cognitive impairment was defined as more than 1.5 standard deviations below published normative data. The MoCA scores were compared with the results of the neuropsychological tests.

Of the 456 participants, 231 agreed to complete a neuropsychological evaluation. Overall, the mean MoCA score was 17.7. Neuropsychological testing classified 39% of the patients as normal, 58% as having mild cognitive impairment (MCI), and three percent as having dementia. The published cut point of ≤ 23 on the MoCA for MCI yielded a high false-positive rate (79%). An ROC analyses identified ≤ 18.5 as the score on the MoCA that best identified MCI or dementia using the English language MoCA (65% sensitivity; 77% specificity) and ≤ 16.5 using the Spanish MoCA (64% sensitivity; 73% specificity).

Conclusion: This study of elderly patients with cognitive complaints, seen at a community clinic, found that current cutoff point for the MoCA resulted in inappropriately high false positive rates for the diagnosis of cognitive impairment.

Stimmel, M., et al. Is the Montreal Cognitive Assessment Culturally Valid in a Diverse, Geriatric, Primary Care Setting? Lessons from the Bronx. *J Am Geriatric Soc.* 2024, March;72(3): 850-857.

INCIDENCE OF CONVERSION TO KNEE ARTHROPLASTY FOLLOWING MENISCUS SURGERY

Meniscal surgery and knee arthroplasty are two of the most common orthopedic procedures in the United States. As meniscus surgery is associated with a higher incidence of osteoarthritis, this study reviewed the likelihood of conversion to knee arthroplasty within five years following meniscus repair or meniscectomy.

This retrospective analysis was conducted using the Pearl Diver database, containing information from over 157 million patients documented from January of 2010 to October of 2021. Patients who underwent a primary meniscus repair or meniscectomy were identified, with their demographics and comorbidities recorded. The primary outcome variable was the five-year, cumulative incidence of conversion to knee arthroplasty following the meniscal surgery.

Data were analyzed for 8,125 patients who underwent meniscus repair and 240,209 who underwent meniscectomy. The cumulative rates for conversion to knee arthroplasty within five years were 1.7% for meniscal repair and 8.4% for meniscectomy. Factors which increased the risk of arthroplasty were male gender ($p < 0.001$), higher Charleston Comorbidity Index ($p=0.012$), obesity ($p < 0.001$), and smoking ($p=0.010$).

Conclusion: This study of patients who underwent primary meniscal repair or meniscectomy found that the risks of conversion to total knee arthroplasty within five years were 1.7% among those with meniscal repair and 8.4% among those with meniscectomy.

Bracey, L., et al. The Cumulative Index and Risk Factors Associated with Five-Year Conversion to Knee Arthroplasty following Primary Meniscus Repair or Primary Meniscectomy. *J Orthop.* 2024, June; 52: 17-20.

EXERCISE VARIABLES AND PAIN REDUCTION

Low back pain (LBP) is a major healthcare issue, affecting 7.1% of the world's adult population. While exercise is recommended for managing chronic LBP, the parameters of an ideal exercise prescription remain unclear. This study explored the relationship between exercise training parameters and pain intensity in individuals with chronic LBP.

This study was a secondary analysis of a trial comparing the effects of general strength and conditioning to motor control exercises and manual therapy. This analysis focused on twenty subjects who were randomized to a general strength and conditioning program. The primary outcomes were exercise training parameters (time under tension, rating of perceived exertion (RPE), session duration, session-perceived exertion, and training frequency) and pain intensity (a 100mm visual analogue scale), measured every two weeks from baseline to six-month follow-up.

Pain intensity was negatively associated with time under tension during the preceding week ($p=0.040$) and perceived intensity of the prior session ($p=0.002$). Pain intensity was positively associated with the duration of the prior session. The exercise intervention did not meet a clinically meaningful improvement of 20 points.

Conclusion: This study of patients with chronic low back pain found that, during six months of general strength and conditioning, lower pain intensity was associated with higher training intensity, greater volume, and shorter session duration.

Neason, C., et al. Exercise Prescription Variables Predict Reduction in Pain Intensity and Low Back Pain Secondary Analysis of a Randomized, Controlled Trial. *BMJ Open Sport Exerc Med.* 2024, 10(1): 10e001744.

PLANT BASED DIETS AND HIP FRACTURE AFTER MENOPAUSE

Among women over 50 years of age, one in three will experience a fragility fracture. While some concern has been expressed that plant-based diets may have harmful effects on bone health, that association has been unclear. This study was designed to better understand the association between plant-based diet quality and the risk of hip fracture among postmenopausal women.

The Nurses' Health Study (NHS) is a prospective cohort, beginning in 1976, which included 121,700 female registered nurses in the United States, ages 30 to 55 years. Every four years, a food frequency questionnaire was completed and scored on a Plant Based Diet Index (PDI) as healthful (hPDI) or unhealthful (uPDI). Data were also collected for age, body mass index, smoking status, the use of thiazide diuretics, furosemide-like diuretics, and anti-inflammatory steroids, as well as postmenopausal hormone treatment. The diet scores were compared to reports of hip fractures.

Of the 70,285 participants, 2,038 cases of hip fracture were reported over 30 years. Long-term hPDI or uPDI scores were not significantly associated with hip fracture risk. However, when examining recent intake, hPDI was found to be associated with a 21% lower risk of hip fracture ($p=0.02$ for trend), whereas uPDI was associated with a 28% higher risk ($p=0.008$).

Conclusion: This study of Caucasian, postmenopausal women found that long-term adherence to a plant-based diet was not associated with an increased risk of hip fracture, while recent adherence to a plant-based diet was associated with a lower risk of fracture.

Sotos-Prieto, M., et al. Plant Based Diets and Risk of Hip Fracture in

OMALIZUMAB FOR MULTIPLE FOOD ALLERGIES

Food allergies affect 10% of adults in the United States and can have a detrimental effect on nutrition and quality of life. Omalizumab is a monoclonal antibody that binds to IgE and has shown promise in treating food allergies. This study, the Omalizumab as Monotherapy and as Adjunct Therapy to Multi-Allergen Oral Immunotherapy (OIT) in Food Allergic Children and Adults (OUTMATCH) trial was designed to clarify the efficacy of this medication for individuals with multiple food allergies.

This double-blind, randomized, placebo-controlled trial, included children one to 17 years of age with a history of allergy to peanuts and at least two other foods. After testing confirmed the food allergies, the subjects were randomized to receive the study medication or a placebo, administered subcutaneously every two to four weeks for a total of 16 to 20 weeks. The primary endpoint was consumption of a single dose of at least 600 mg of peanut protein without dose limiting symptoms.

Of the 118 participants, 79 received omalizumab. At ten weeks, 67% of the treatment group were able to consume a single dose of 600mg of peanut protein without significant symptoms, compared to seven percent of those who received the placebo ($p < 0.001$). Similar findings were found for exposure to cashew, egg, and milk (all $p < 0.001$).

Conclusion: This study of children with multiple food allergies found that omalizumab, a monoclonal antibody, was effective in increasing the reaction threshold for multiple, common food allergies.

Wood, D., et al. Omalizumab for the Treatment of Multiple Food Allergies. **N Eng J Med.** 2024, March 7; 390 (10): 889-899.

LOWER BODY FRACTURES AND RISK OF DEMENTIA

Fractures and dementia are common in the elderly, with both resulting in substantial morbidity and mortality. This study was designed to determine whether lower body

fracture is an independent risk factor for dementia.

Using the National Health Insurance Service—Senior Cohort (NIH-SC) of South Korea, data were randomly selected from 10% of the population of people ≥ 60 years of age in 2002. The subjects were followed for until December 31, 2015. The subjects were initially free of dementia and had experienced a lower body fracture between January 1, 2006, and December of 2012. Dementia was identified by the prescription of antedementia drugs (donepezil, galantamine, rivastigmine, or memantine) under a primary or secondary diagnosis of dementia. The data were adjusted for age, gender, income level, and the Charleston Comorbidity Index (CCI). Each subject with a fracture (F+) was matched with three persons with no reported fracture (F-).

Data were analyzed for 53,776 subjects and 161,328 controls. At the nine-year follow-up, dementia had developed in 6.6% of the F+ group and 4.9% in the F- group ($p < 0.001$), with an adjusted hazard ratio (aHR) of 1.55. Post-fracture dementia was more likely among females (aHR 1.40), those ≥ 80 years of age (aHR 15.34), and a CCI of three or more (aHR 1.38).

Conclusion: This study, using a nationwide cohort from South Korea, found that a lower-body fracture was an independent risk factor for the development of dementia.

Kim, J., et al. Lower Body Fractures and the Risk of Dementia: A Nationwide, Population Based Study. **J Clin Neurol.** 2024, March; 20(2): 208-213.

POST-STROKE APHASIA, QUALITY OF LIFE, DEPRESSION, AND PERCEPTION OF HEALTH

Post-stroke aphasia (PTA) is common, affecting up to 40% of stroke survivors. This study assessed the impact of PTA on functional communication, perception of quality of life, and mood.

Subjects for this trial included patients who participated in the Dubbing Language-therapy CINema-based in Aphasia Post-Stroke (Dulcinea) Trial. All subjects were post-stroke, with nonfluent aphasia. The subjects completed the General Health Questionnaire (GHQ-12) and the Stroke Aphasia Quality of Life Scale (SAQOL-39). The Stroke Aphasic Depression Questionnaire

(SADQ-10) was used to assess for depressed mood and the Communicative Activity Log (CAL) to measure functional communication. A group of 82 matched, healthy individuals served as controls.

Data were included for 23 patients with a mean age of 62.9 years, with a median time from stroke onset of 24 months. Compared to controls, those with PTA had worse scores on psychological well-being as measured by the GHQ-12 ($p = 0.004$), quality of life scores on the SAQOL-39 ($p = 0.000$), functional communication on the CAL ($p = 0.000$). Depressed mood, measured by the SADQ-10 was more prevalent in the controls ($p = 0.016$). In the analysis of variance, those with PTA had worse scores on SAQOL-39, CAL and SADQ-10, and better scores on SAQOL-39 (all $p < 0.001$)

Conclusion: This study of patients with post-stroke aphasia found that communication difficulties affect the perception of health as well as quality of life, but that these patients report fewer depressive symptoms than people without stroke.

Bueno-Guerra, N., et al. Impact of Post-Stroke Aphasia on Functional Communication, Quality of Life, Perception of Health, and Depression: A Case-Control Study. **Euro J Neurol.** 2024; 31(4): e16184.

APIXABAN FOR STROKE PREVENTION IN SUBCLINICAL ATRIAL FIBRILLATION

Atrial fibrillation (AF) is a leading cause of stroke, particularly among the elderly. Recent data have shown that short episodes of asymptomatic AF are common, even among patients with no clinical evidence of AF. This study assessed the efficacy of a direct-acting oral anticoagulant for patients with risk factors for stroke who also had subclinical AF.

The Apixaban for the Reduction of Thrombo-Embolism in Patients with Device-Detected Subclinical Atrial Fibrillation (ARTESIA) trial included patients presenting with subclinical AF and a CHA2DS2-VASc score of three or more. Those subjects were randomized to receive either apixaban, five milligrams twice per day, or aspirin, 81 mg per day. The primary efficacy outcome was a composite of stroke and systemic embolism.

Data were collected from 4,012 patients, with a mean age of 76.8 years and a mean CHA2DS2-VASc

score of 3.9. During follow-up, death occurred in 22.7% of the apixaban group and 21.9% of the aspirin group. Stroke or systemic embolism occurred in 0.78% per patient-year in the Apixaban group and in 1.24% per-patient year in the aspirin group (p=0.007). The risks of major bleeding were 1.71% per patient per year with Apixaban and 0.94% per patient per year in the aspirin group (p=0.001). Fatal bleeding occurred in five patients in the Apixaban group and eight patients in the aspirin group.

Conclusion: This study of patients with subclinical atrial fibrillation found that, among those with episodes of subclinical atrial fibrillation and risk factors for stroke, the risk of stroke or systemic embolism was lower by 37% with apixaban than with aspirin, and the risk of disabling or fatal stroke was lower by 49%.

Healey, J., et al. Apixaban for Stroke Prevention in Subclinical Atrial Fibrillation. *N Engl J Med.* 2024, January; 390: 107-117.

MORTALITY AFTER TRANSITION TO DAYLIGHT SAVINGS TIME IN THE UNITED STATES

Daylight savings time was implemented in the United States in 1966, involving most individuals in the U.S. As some studies have suggested adverse effects of this time transition, this study investigated the relationship between transitioning to daylight savings time and the risk of all-cause and cause-specific mortality.

Data were obtained from the National Center for Health Statistics, with aggregate death counts from 50 states in the United States and the District of Columbia from 2014 to 2020. Death rates were compared from before to after each of the biannual time changes.

For the first seven weeks after the spring transition, a non-significant increase was found in mortality. After the transition to autumn daylight saving time, a small decrease in all-cause mortality was noted from zero to seven weeks after the transition. The protective effect of the transition to autumn daylight saving time on the risk of mortality was more pronounced in elderly people aged ≥ 75 years, the non-Hispanic white population, and among those residing in the eastern time zone.

Conclusion: This study found that, after the daylight savings time changes in the autumn, the risk of mortality is reduced for eight weeks, while no significant change in mortality occurs with the spring change.

Zhao, S., et al. All Cause and Cause-Specific Mortality Associated with Transition to Daylight Saving Time in U.S.: Nationwide, Time Series, Observational Study. *BMJ Med.* 2024 Mar 6;3(1): e000771.

RISK OF STROKE AFTER INFLUENZA VACCINE

Infectious disease such as influenza is known to increase the risk of stroke. As influenza vaccination causes a short-term inflammatory response, some have thought that this response might be associated with a short-term risk of stroke. This study investigated the risk of stroke shortly after taking the influenza vaccine using a population level data system.

Population-level data were obtained from all adult individuals registered under the Alberta Healthcare Insurance plan between September 2009 and December 2018. The records of adult patients were reviewed, with the exposure of interest being the most recent seasonal influenza vaccination, defined as a 7/14/21 and 30-day time window after the vaccination application. The outcome of interest was any stroke identified using the morbidity and ambulatory care abstract reporting system. Patient level covariates of interest included age, urban versus rural living situation, a prescription for anticoagulant medications, and diagnoses including atrial fibrillation, chronic obstructive pulmonary disease, diabetes and hypertension.

Over the study period, 1,769,565 individuals received at least one influenza vaccination. During this., 38,126 stroke events occurred, with 1,309 occurring within 30 days of vaccination. In the adjusted analysis, the recent vaccination was associated with a reduced risk of stroke at three days (Hazard Ratio (HR) 0.83), seven days (HR 0.87), 14 days (HR 0.87), 21 (HR 0.85) and 30 days (HR 0.66). Additional analysis found that this reduction was driven by a reduced risk of acute ischemic stroke.

Conclusion: This study failed to demonstrate an increased risk of

stroke after an influenza vaccination, revealing instead, a slight reduction in the risk.

Tanaka, K., et al. Risk of Stroke Within Three, 7, 14, 21 and 30 Days After Influenza Vaccination in Alberta Canada: A Population Based Study. *Euro J Neurol.* 2024 Apr;31(4): e16172.

MIRTAZEPINE FOR APPETITE STIMULANT

More than half of the patients diagnosed with cancer suffer from anorexia. Despite the seriousness of this symptom, there is no clear preferred treatment option. Mirtazapine has been proposed as an option based on its appetite stimulant properties, through regulatory effects in the central nervous system and gastric motility. This study investigated the clinical efficacy of this medication in patients with anorexia due to lung cancer.

This randomized double-blind placebo-controlled trial included 86 patients diagnosed with non-small cell lung cancer (NSCLC) with an Anorexia Cachexia Scale (ACS) score ≤ 32 . The patients were randomized to receive either placebo or 50mg per day of mirtazapine for 15 days increasing to 30mg per day for the remainder of eight weeks. Patients were followed for appetite changes and calorie intake changes from baseline.

After four weeks, the mirtazapine group showed a significant increase in energy consumption (p < 0.001), percentage of the estimated energy requirements achieved (p < 0.001), protein intake (p < 0.001), carbohydrates (p = 0.006), and fat intake (p = 0.001). The mirtazapine group significantly decreased the proportion of patients with sarcopenia (82.8% vs 57.1%, p = 0.03) at eight weeks.

Conclusion: This study of patients diagnosed with anorexia due to non-small cell lung found that mirtazapine may be an effective appetite stimulant.

Arrieta, O., et al. Mirtazapine as Appetite Stimulant in Patients with Non-Small Cell Lung Cancer and Anorexia a Randomized Clinical Trial. *JAMA Oncol.* 2024 Mar 1;10(3):305-314.

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